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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
GABEL, GAILENE	

ART UNIT	PAPER NUMBER
1641	

MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/572,868	ODEFEY, CONSTANTIN	
	Examiner	Art Unit	
	GAILENE R. GABEL	1641	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 July 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12* is/are pending in the application.

4a) Of the above claim(s) *3,4,9 and 10* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,5-8,11 and 12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *1-12* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *22 March 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *3/22/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election of Group I, claims 1, 2, 5-8, 11 and 12, without traverse, filed July 30, 2008, is acknowledged and has been entered. Claims 3, 4, 9 and 10 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Accordingly, claims 1-12 are pending. Claims 1, 2, 5-8, 11 and 12 are under examination.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Oath/Declaration

3. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

> The oath or declaration is defective because:
> It does not identify the mailing address of each inventor. A mailing address is an address at which an inventor customarily receives his or her mail and may be either a home or business address. The mailing address should include the ZIP Code designation. The mailing address may be provided in an application data sheet or a supplemental oath or declaration. See 37 CFR 1.63(c) and 37 CFR 1.76.

Specification

4. The disclosure is objected to because of the following informalities: the specification is replete with grammatical and spelling error. Examples are as follows:

In the specification at page 13, line 25, "aeas" should be --areas--.

Note the content provided in page 11, lines 23-27. It appears that "should be so low" should be --should not be so low--.

It is suggested that Applicant review the disclosure for other errors for correction. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1, 2, 5-8, 11 and 12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 is confusing in reciting multiple exchangeable use of the term "fluid" in claim 1 in referring to sample as "a sample fluid" (all occurrences), a fluid containing antibodies as "a fluid…" (all occurrences), and the reaction mixture as "reaction fluid" (all occurrences) because it uses a same term to refer to different components in the method. Perhaps, "sample fluid" should be simply referred to as "sample" and "reaction fluid" should be clearly and differentially referred to as "reaction mixture" since it comprises a mixture of the sample and the fluid containing the antibodies.

Claim 1 is vague and indefinite in reciting, "A method for the detection of small quantities of particles" in the preamble, and then "detecting ..., the signal strength depending on the size and number of antigen-antibody precipitates formed," because it is unclear as to whether Applicant intends detecting "quantities of particles" which appear to have been "given at a miximum particle size" whereas the last step in the claim calls for detection of actual antigen-antibody precipitates that formed. Does Applicant perhaps intend measuring the concentration of antigen present in a sample instead.

Claim 1 is vague and indefinite in omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. In this case, it is unclear what essential structural and functional cooperative relationship between each one of 1) the particles in the sample having two binding sites, 2) the particles in the fluid containing antibodies, and 3) the antigen-antibody precipitates, so as to provide a clear indication of how the small quantities of particles are detected. Are the recited antigens the same as the two binding sites which the claim implies (not clearly defined) to be immobilized to the particles? Are the antigens cell surface antigens of the cells, i.e. particles, used as binding sites? Should the antibodies contained in the fluid be immobilized or caused to be immobilized to the particles present in the fluid? What is the nature of the particles present in the fluid containing the antibodies? Should the antibodies be specific to either one of the binding sites present in the particles of the sample? It appears that

such requirements are critical in practicing the claimed invention so as to allow antigen-antibody precipitation formation to occur, and subsequent detection thereof.

Claim 1 is indefinite in reciting, "essentially", first and second occurrence, because the term "essentially" is a subjective term that lacks a comparative basis of defining its metes and bounds.

Claim 1, line 13 lacks antecedent basis in reciting, "the measuring cell."

Claims 2 and 5-8 have improper antecedent basis problems in reciting, "A method according to."

Claim 5 is rejected under 35 USC § 112, fifth paragraph for reciting improper multiple dependent claims. Claims in the multiple dependent form shall contain a reference, in the alternative only, to more than one claim previously set forth and then specify a further limitation of the subject matter claimed.

Claim 5 is indefinite in relation to claim 1 from which it depends in reciting, "at least ... one polyclonal antibody" because it is unclear how "at least two [different] binding sites" in claim 1 can be caused to be bound by using only at least one polyclonal antibody.

Claim 6 is rejected under 35 USC § 112, fifth paragraph for reciting improper multiple dependent claims. Claims in the multiple dependent form shall contain a reference, in the alternative only, to more than one claim previously set forth and then specify a further limitation of the subject matter claimed.

Claim 6 recites improper Markush language in reciting, "selected from the group consisting of immunoglobulin G or immunoglobulin M." Perhaps, Applicant intends, "selected from the group consisting of immunoglobulin G and immunoglobulin M."

Claim 7 is rejected under 35 USC § 112, fifth paragraph for reciting improper multiple dependent claims. Claims in the multiple dependent form shall contain a reference, in the alternative only, to more than one claim previously set forth and then specify a further limitation of the subject matter claimed.

Claim 8 is rejected under 35 USC § 112, fifth paragraph for reciting improper multiple dependent claims. Claims in the multiple dependent form shall contain a reference, in the alternative only, to more than one claim previously set forth and then specify a further limitation of the subject matter claimed.

Claim 11 has improper antecedent basis problem in reciting, "the light generated by."

Claim 12 lacks antecedent basis problem in reciting, "the sample."

Claim 12 lacks clear antecedent basis problem in reciting, "the particles in a fluid."

Claim 12 is vague in reciting "A kit", comprising "a device... comprising a laser, and measuring cell, and a photodetector" because it is unclear how a device having such size proportions and requirements can be incorporated and pre-packaged into a kit format.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 1, 2 and 5-8 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a method for detection of small quantities of antigens/particles by:

- Contacting a sample containing a limited amount of antigen particles having a given maximum particle size and at least two binding sites with a fluid containing a limited amount of antibodies that are capable of binding the at least two binding sites so as to yield a reaction mixture having formed therein antigen-antibody precipitates;
- Directing a light beam through the reaction mixture;
- Detecting a signal by measuring extinction at the light-dark boundary of the cone of light that is produced when the light generated by the laser passes through a measuring cell containing the reaction mixture using a photodetector; whereupon the signal strength depends on the size and number of antigen-antibody precipitates that formed.

does not reasonably provide enablement for a method in which 1) the RNA degradation step and 2) the permeabilizing step are omitted. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

As set forth in In re Wands, 858 F .2d 731, 8 USPQ2d 1400 (Fed. Cir. 1988), enablement requires that the specification teach those in the art to make and use the invention without undue experimentation. Factors to be considered in determining whether a disclosure would require undue experimentation include 1) the nature of the invention, 2) the state of the prior art, 3) the predictability or lack thereof in the art, 4) the amount of direction or guidance present, 5) the presence or absence of working examples, 6) the quantity of experimentation necessary, 7) the relative skill of those in the art, and 8) the breadth of the claims.

In this case, page 7, lines 3-9 and page 12, lines 12-19 of the specification provide that an undesirable, overly excess of antigens and antibodies could lead to an inhibition of precipitation referred to as "prozone phenomenon", since in the presence of a large excess of antibodies, each epitope will only bind monovalently to a single antibody; hence, cross-linking is no longer possible, or in the presence of an overly large excess of antigens, trimers are formed from an antibody molecule and two antigen molecules; hence inhibiting precipitation. Additionally, page 11, lines 23-27 and page 12, lines 12-19 also state that concentrations of the antigen and antibody solutions used should only be low enough so that antigen-antibody reactions that occur will not produce too many precipitates or precipitates that are too large, causing several particles to be present at once in a beam, and transit time would be very difficult to detect.

Nowhere in the specification including the examples provided, does it teach the method such as recited in claims 1,2 and 5-8.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claim 11 is rejected under 35 U.S.C. 102(b) as being anticipated by Miyazaki et al. (US Patent 5,534,441).

Miyazaki et al. disclose a device comprising a laser, a measuring cell, and a photodetector (Abstract and Figure 2). The laser is a semiconductor or helium-neon laser (col. 13, lines 49-55). The measuring cell is an optical cell (col. 4, lines 15-21 and col. 13, lines 31-33 and 47). The photodetector is a photomultiplier tube. The photodetector is equipped with adjustable signal amplification and adjustable operating point so as to address variation in light quantity (col. 6, lines 60-65 and col. 13, lines 57-67).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miyazaki et al. (US Patent 5,534,441) in view of Foster et al. (US Patent 4,444,879).

Miyazaki et al. disclose components for use in agglutination method comprising at least one antibody (immunologically active material, i.e. antibody, immobilized into surface of solid fine particles) that is capable of specifically binding to a given particle (antigen) (col. 4, lines 15-21; col. 5, lines 20-26; and col. 7, line 43 to col. 8, line 2), at least one suitable fluid for receiving the sample (dispersing medium: solvent) (col. 8, lines 13-28; and col. 8, line 66 to col. 9, line 47). The components also include a device comprising a laser, a measuring cell, and a photodetector (Figure 2 and Apparatus Example 3). The laser is a semiconductor or helium-neon laser (col. 13, lines 49-55). The measuring cell is an optical cell (col. 4, lines 15-21 and col. 13, lines 31-33 and 47). The photodetector is a photomultiplier tube. The photodetector is equipped with adjustable signal amplification and adjustable operating point so as to address variation in light quantity (col. 6, lines 60-65 and col. 13, lines 57-67).

Miyazaki differs from the claimed invention in failing to teach incorporating the component into a kit format.

Foster et al. disclose a kit comprising at least one antibody (immunoglobulin) which binds an antigen, a measuring cell (microtiter plate) for receiving a sample (col. 15, lines 12-34 and Figure 6).

It would have been obvious to one of ordinary skill in the art at the time of the instant invention to incorporate the antibodies and reagents such as receiving fluid taught by Miyazaki into a kit arrangement as taught by Foster because test kits are

conventional and well known in the art for their recognized advantages of convenience and economy.

8. No claims are allowed.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to GAILENE R. GABEL whose telephone number is (571)272-0820. The examiner can normally be reached on Monday to Thursday, 5:30 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Long V. Le can be reached on (571) 272-0823. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/GAILENE R. GABEL/

Primary Examiner, Art Unit 1641

October 1, 2008